IN THE CLAIMS:

1   1.–4.   (Cancelled)

1   5.   (Previously Presented) A method of determining resistance in a fuel cell compris-

2   ing the steps of:

3   (A)   providing a DC-DC converter with an associated microcontroller;

4   (B)   adjusting input parameters of said DC-DC converter, using said microcon-

5   troller, to establish an initial duty cycle;

6   (C)   reading a stack voltage and the stack current;

7   (D)   changing the duty cycle;

8   (E)   substantially immediately measuring the fuel cell voltage and fuel cell cur-

9   rent; and

10   (F)   calculating resistance based upon measurements.

1   6.   (Previously Presented) The method of determining resistance, as defined in claim

2   5 comprising the further step of:

3   evaluating any changes in resistance over time as a measure of fuel cell hydration.

1   7.   (Previously Presented) The method of determining resistance, as defined in claim

2   5, wherein said fuel cell comprises one of the following:

3   (A)   a fuel cell stack;

4   (B)   a fuel cell array; and

5   (C)   an individual fuel cell.

1   8.   (Previously Presented) The method of determining resistance, as defined in claim

2   7, wherein a fuel cell in said fuel cell stack, said fuel cell array, or said individual fuel

3   cell is a direct oxidation fuel cell.

1　9.　　(Previously Presented) The method of determining resistance, as defined in claim

2　8, wherein said direct oxidation fuel cell is a direct methanol fuel cell.

1　10.　　(Previously Presented) The method of determining resistance, as defined in claim

2　7 , wherein a fuel cell in said fuel cell stack, said fuel cell array, or said individual fuel

3　cell is a hydrogen fuel cell.

1　11.–15.(Cancelled)

1　16.　　(Original) A method of measuring resistance across a direct oxidation fuel cell

2　stack that includes programmable DC-DC switches including the steps of:

3　　　　(A)　　using said programmable DC-DC switches to switch a load on and off said

4　fuel cell stack;

5　　　　(B)　　signaling an associated microprocessor under pulse-width modulation con-

6　trol to adjust the duty cycle of said DC-DC switches;

7　　　　(C)　　measuring voltage changes as said switches change;

8　　　　(D)　　calculating a change in resistance over time; and

9　　　　(E)　　predicting cell hydration based upon said changes.

1　17.　　(Cancelled)